

REMARKS

Claim 26 has been amended such that the tooling has a rough surface that has been machined or that the surface of the tooling has an attached friction enhancer. Support for this amendment can be found in claims 32 and 33 and on page 8 line 23.

Double Patenting

Claims 26-35 are rejected on the ground of non statutory obviousness type double patenting as being unpatentable over claims 1, 7 and 14 of U.S. Patent No. 6,508, 909 in view of Artz et al (US 2002/0173575) or Yonnie et al. (US 5,817,269).

The Examiner argues that Claim 1 of the '909 patent teaches all the features of the present invention other than a tooling having a rough enough surface to promote friction in an amount effective to achieve common thermal expansion. The Examiner submits that Artz et al or Yonnie et al teach choosing a tooling such that it achieves a common thermal expansion and that providing a tooling with a rough surface would obvious.

In response the Applicants submit that the present invention is directed to a process for assembling a monolithic composite structure from at least one first subcomponent of composite material and at least one second subcomponent of composite material. The process involves attaching an expansion compensating tooling to the second subcomponent, the tooling having a coefficient of thermal expansion that differs from the second component. The tooling has a surface that has been either machined or has a friction enhancer attached thereto such that the surface is rough enough to grip the second subcomponent during curing. The process ensures a common thermal expansion of the tooling and the subcomponent even though they have different coefficients of thermal expansion.

Contrary to the present invention Artz et al teaches a low density water soluble tooling material where the blend can be tailored to provide a desired coefficient of thermal expansion whilst Yonnie et al teaches toolings of different materials and different thicknesses that allow the tooling to produce varying magnitudes of thermal expansion. The Applicants submit that neither Artz et al. or Yonnie et al. provide any disclosure of providing

a tooling with a surface that has been either machined or has had a friction enhancer attached thereto such that the surface is rough enough to grip the second subcomponent during curing. Consequently the Applicants submit that the claims are not rendered obvious by the cited art.

Claim Rejections -35 U.S.C. 103

The Examiner rejects claims 26 and 28-35 under 35 U.S.C 103(a) as being unpatentable over Cerezo Pandcorbo et al. (EP 1134070) in view of Artz et al (US 2002/0173575) or Yonnie et al. (US 5,817,269).

The Examiner essentially reiterates the above arguments but submits that because the tools employed by either Artz et al. or Yonnie et al. achieve the desired thermal expansion they are reasonably considered “rough enough”. However as argued herein above Artz et al. or Yonnie et al. achieve the desired thermal expansion by changing the material and the material thickness and do not provide any teaching of a tooling with a rough surface. Consequently the Applicants submit that the claims are not rendered obvious by the cited art.

It is noted that the Examiner submits that Cerezo Pandcorbo et al. teaches metal toolings that would have necessarily been machined in order to produce that part .

In response the Applicants submit that the disclosure of a tooling which has necessarily been machined does amount to a teaching of a tooling that has a surface that has been machined to provide a rough surface.

Furthermore it is noted that the Examiner submits that Artz et al. teaches the use of microspheres which would be considered to be friction enhancers.

In response the Applicants submit that the microspheres of Artz et al are used as a lightweight, low density fillers and are not employed to provide a tooling with a rough surface and could not be considered to be friction enhancers.

The Examiner rejects claim 27 under 35 U.S.C 103(a) as being unpatentable over Pandcorbo et al. (EP 1134070) in view of Artz et al (US 2002/0173575) or Yonnie et al. (US 5,817,269) and further over Wilden et al. (U.S. Patent 5,242,523).

In response the Applicants submit that dependent claim 27 derives its patentability from claim 26 and that Wilden et al. does not remedy the deficiencies of the other citations.

The Examiner rejects claims 26, 27 and 29-35 under 35 U.S.C 103(a) as being unpatentable over Breur et al. (U.S. Patent 6,306,239) in view of Artz et al (US

2002/0173575) or Yonnie et al. (US 5,817,269).

The Examiner employs the same arguments with regards Artz et al and Yonnie et al. but adds that Breur et al teaches a tooling with protruding webs.

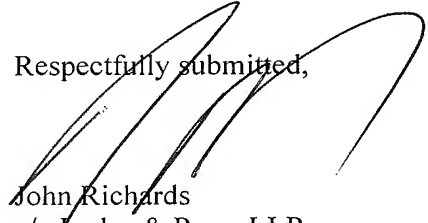
In response the Applicants submit that Breur et al. teaches the use of stiffening webs 7 with contact surfaces 71' and protruding webs 72 which represent a vertically orientated flange of a U sectional profile member or a vertically orientated shank of an L-sectional profile member. However Breur et al. does not teach that either the contact surface or the surface of the protruding webs has been machined or has had a friction enhancer attached thereto such that the surface is rough enough to grip the second subcomponent during curing. Consequently the Applicants submit that the claims are not rendered obvious by the cited art.

Finally the Examiner further cites Kline et al. (US 6,045,651) and submits that this citation teaches a method of producing an analogous composite material where the plies of material are held with grit/sand strips and as such it would be obvious to modify the toolings of Pandcorbo et al or Breur et al.

In response the Applicants submit that Kline et al. is directed to a hand assisted lamination process wherein plies of composite material are compacted together. Each ply has a grit strip to ensure that the plies do not slip during compaction. Contrary to the present invention Kline et al. is not directed to a process for assembling a monolithic composite structure from at least one first subcomponent of composite material and at least one second subcomponent of composite material. Furthermore Kline et al is not concerned with providing an expansion compensating tooling with a roughened surface such that it grips the second subcomponent during curing and ensures a common thermal expansion of the tooling and the subcomponent. Finally Kline et al. does not provide any reason or motivation to apply the grit strip to the expansion compensating tool of either of Pandcorbo et al or Breur et al. Consequently the Applicants submit that the claims are not rendered obvious by the cited art.

In view of the foregoing, it is respectfully submitted that all rejections and objections of record have been overcome and that this application is now in order for allowance. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,



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